

### **Remarks**

Reconsideration of the application is respectfully requested in view of the following remarks. Claims 1-53 are pending in the application. No claims have been allowed. Claims 1, 3, 5, 9, 12, 14, 18, 22, 25, 27, 31, 35, 38, 40, and 41 are independent.

#### ***Patentability of Claims 1-53 over Ishikawa under § 102(e)***

Claims 1-53 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,457,165 to Ishikawa et al. ("Ishikawa"). These rejections are respectfully traversed.

Applicants respectfully submit that the claims in their present form are allowable over Ishikawa. For a 102(e) rejection to be proper, the cited art must show each and every element as set forth in the claim (*see* MPEP § 2131.01). Ishikawa does not so show.

#### **a. Claims 1, 2, 4, 14-17, 27-30, and 42-51**

Independent claims 1, 14, and 27 require: "generating symbols and connections formed according to the netlist and at least in part according to connectivity strength between at least a first symbol and a second symbol, the first symbol and the second symbol having at least one connection between the first symbol and the second symbol, the connectivity strength corresponding to a quantification of the at least one connection between the first symbol and the second symbol" (emphasis added).

Ishikawa fails to teach or suggest a connectivity strength corresponding to a quantification of the at least one connection between the first symbol and the second symbol, as required by independent claims 1, 14, and 27. For example, Ishikawa is understood to describe a summing section that can calculate total numbers of wires passing through routes (see col. 11,

line 31, to col. 12, line 15, as noted in the Action) but *does not discuss any type of connectivity strength* that is derived from such summations. Rather, Ishikawa's summing section is used to calculate the difference of wires between two classes of vehicle or to compare the total number of wires between specifications (see col. 13, lines 16-21) and *not* to derive any type of connectivity strength.

Furthermore, Ishikawa fails to teach or suggest generating symbols and connections formed according to the netlist and at least in part according to connectivity strength between at least a first symbol and a second symbol, as required by independent claims 1, 14, and 27. In fact, Ishikawa teaches away from generating symbols and connections according to connectivity strength because Ishikawa is understood to consider nothing relating to a quantification of connections until *after a wiring diagram and/or a route drawing of a wiring harness have been prepared*. For example, Ishikawa describes an auxiliary unit 6-3 that is moved from a first position in a route drawing (see FIG. 13) to a second position in the route drawing (see FIG. 14). *Only after the auxiliary unit is moved to the second position* is the summing section utilized (see col. 11, lines 51-58, as noted in the Action). Additionally, Ishikawa states that "when a position of an auxiliary unit is changed to another position, the total number of wires and the diameter of the wiring harness are also changed *following this positional change*" (see col. 12, lines 11-14, as noted in the Action, emphasis added). Thus, Ishikawa is understood to not take into account anything relating to a quantification of connections between symbols, much less connectivity strength between symbols, in any symbol or connection generation.

Therefore, Ishikawa fails to teach or suggest "generating symbols and connections formed according to the netlist and at least in part according to connectivity strength between at least a first symbol and a second symbol, the first symbol and the second symbol having at least

one connection between the first symbol and the second symbol, the connectivity strength corresponding to a quantification of the at least one connection between the first symbol and the second symbol," as recited in independent claims 1, 14, and 27. Accordingly, Applicants respectfully request that the 35 U.S.C. § 102(e) rejections be withdrawn from independent claims 1, 14, and 27.

Dependent claims 2, 4, and 42-51; 15-17; and 28-30 depend from independent claims 1, 14, and 27, respectively, and are allowable for at least the reasons recited above in support of their parent claims 1, 14, and 27. They are also independently patentable. Accordingly, Applicants respectfully request that the 35 U.S.C. § 102(e) rejections of dependent claims 2, 4, 15-17, 28-30, and 42-51 be withdrawn.

**b. Claim 3**

Independent claim 3 requires: "generating a wiring harness diagram, wherein the wiring harness diagram comprises the symbols and the connections, and wherein generating the wiring harness diagram comprises positioning a pin on a side of a first symbol, the side selected according to a connectivity strength corresponding to the number of connections between the first symbol and a second symbol" (emphasis added).

Ishikawa fails to teach or suggest a connectivity strength corresponding to the number of connections between the first symbol and a second symbol, as required by independent claim 3. For example, Ishikawa is understood to describe a summing section that can calculate total numbers of wires passing through routes (see col. 11, line 31, to col. 12, line 15, as noted in the Action) but *does not discuss any type of connectivity strength* that corresponds to such summations. Rather, Ishikawa's summing section is used to calculate the difference of wires

between two classes of vehicle or to compare the total number of wires between specifications (see col. 13, lines 16-21) and *not* to correspond to any type of connectivity strength.

Furthermore, Ishikawa fails to teach or suggest anything having to do with selecting a side according to a connection between a first symbol and a second symbol, much less positioning a pin on a side of a first symbol, the side selected according to a connectivity strength corresponding to the number of connections between the first symbol and a second symbol, as required by independent claim 3. Ishikawa is understood to concern itself with selecting routes to minimize wire lengths between auxiliary units (see col. 9, lines 45-56, as noted in the Action), but there is no mention of selecting sides of symbols, much less according to a connectivity strength between the symbols.

Therefore, Ishikawa fails to teach or suggest "generating a wiring harness diagram, wherein the wiring harness diagram comprises the symbols and the connections, and wherein generating the wiring harness diagram comprises positioning a pin on a side of a first symbol, the side selected according to a connectivity strength corresponding to the number of connections between the first symbol and a second symbol," as recited in independent claim 3. Accordingly, Applicants respectfully request that the 35 U.S.C. § 102(e) rejection of independent claim 3 be withdrawn.

**c. Claims 5-8, 18-21, 31-34, 52, and 53**

Independent claims 5, 18, and 31 require: "sequencing symbol placement in a wiring harness layout at least in part according to the connectivity strength of at least one pair of symbols, wherein the connectivity strength corresponds to a number of connections existing between the at least one pair of symbols" (emphasis added).

Ishikawa fails to teach or suggest a connectivity strength corresponding to a number of connections existing between at least one pair of symbols, as required by independent claims 5, 18, and 31. For example, Ishikawa is understood to describe a summing section that can calculate total numbers of wires passing through routes (see col. 11, line 31, to col. 12, line 15, as noted in the Action) but *does not discuss any type of connectivity strength* that corresponds to such summations. Rather, Ishikawa's summing section is used to calculate the difference of wires between two classes of vehicle or to compare the total number of wires between specifications (see col. 13, lines 16-21) and *not* to correspond to any type of connectivity strength.

Furthermore, Ishikawa fails to teach or suggest sequencing symbol placement in a wiring harness layout at least in part according to the connectivity strength of at least one pair of symbols, as required by independent claims 5, 18, and 31. In fact, Ishikawa teaches away from sequencing symbol placement according to connectivity strength because Ishikawa is understood to consider nothing relating to a number of connections until *after a wiring diagram and/or a route drawing of a wiring harness have been prepared*. For example, Ishikawa describes an auxiliary unit 6-3 that is moved from a first position in a route drawing (see FIG. 13) to a second position in the route drawing (see FIG. 14). *Only after the auxiliary unit is moved to the second position* is the summing section utilized (see col. 11, lines 51-58, as noted in the Action). Additionally, Ishikawa states that "when a position of an auxiliary unit is changed to another position, the total number of wires and the diameter of the wiring harness are also changed *following this positional change*" (see col. 12, lines 11-14, as noted in the Action, emphasis added). Thus, Ishikawa is understood to not take into account anything relating to a number of

connections between symbols, much less connectivity strength between symbols, in any symbol or connection generation.

Therefore, Ishikawa fails to teach or suggest "sequencing symbol placement in a wiring harness layout at least in part according to the connectivity strength of at least one pair of symbols, wherein the connectivity strength corresponds to a number of connections existing between the at least one pair of symbols," as recited in independent claims 5, 18, and 31. Accordingly, Applicants respectfully request that the 35 U.S.C. § 102(e) rejections be withdrawn from independent claims 5, 18, and 31.

Dependent claims 6-8, 52, and 53; 19-21; and 32-34 depend from independent claims 5, 18, and 31, respectively, and are allowable for at least the reasons recited above in support of their parent claims 5, 18, and 31. They are also independently patentable. Accordingly, Applicants respectfully request that the 35 U.S.C. § 102(e) rejections of claims 6-8, 19-21, 32-34, 52, and 53 be withdrawn.

**d. Claims 9-11, 22-24, and 35-37**

Independent claims 9, 22, and 35 require: "sequencing symbol placement in a wiring harness layout for at least one bundle comprising signal-carriers, at least in part according to the connectivity strength of at least one pair of symbols, the at least one pair of symbols having at least one connection in-between, the connectivity strength being determined by the at least one connection in-between the at least one pair of symbols" (emphasis added) and "selecting a side of a first symbol on which to place a pin to increase the directness of connectivity between the first symbol and a second symbol."

Ishikawa fails to teach or suggest a connectivity strength being determined by the at least one connection in-between at least one pair of symbols, as required by independent claims 5, 18, and 31. For example, Ishikawa is understood to describe a summing section that can calculate total numbers of wires passing through routes (see col. 11, line 31, to col. 12, line 15, as noted in the Action) but *does not discuss any type of connectivity strength* that corresponds to such summations. Rather, Ishikawa's summing section is used to calculate the difference of wires between two classes of vehicle or to compare the total number of wires between specifications (see col. 13, lines 16-21) and *not* to determine any type of connectivity strength.

Furthermore, Ishikawa fails to teach or suggest sequencing symbol placement in a wiring harness layout at least in part according to the connectivity strength of at least one pair of symbols, as required by independent claims 5, 18, and 31. In fact, Ishikawa teaches away from sequencing symbol placement according to connectivity strength because Ishikawa is understood to consider nothing relating to a number of connections until *after a wiring diagram and/or a route drawing of a wiring harness have been prepared*. For example, Ishikawa describes an auxiliary unit 6-3 that is moved from a first position in a route drawing (see FIG. 13) to a second position in the route drawing (see FIG. 14). *Only after the auxiliary unit is moved to the second position* is the summing section utilized (see col. 11, lines 51-58, as noted in the Action). Additionally, Ishikawa states that "when a position of an auxiliary unit is changed to another position, the total number of wires and the diameter of the wiring harness are also changed *following this positional change*" (see col. 12, lines 11-14, as noted in the Action, emphasis added). Thus, Ishikawa is understood to not take into account anything relating to a number of connections between symbols, much less connectivity strength between symbols, in any symbol or connection generation.

Additionally, Ishikawa fails to teach or disclose anything having to do with selecting a side according to a connection between a first symbol and a second symbol, much less selecting a side of a first symbol on which to place a pin to increase the directness of connectivity between the first symbol and a second symbol, as recited in independent claims 9, 22, and 35. Ishikawa is understood to concern itself with selecting routes to minimize wire lengths between auxiliary units (see col. 9, lines 45-56), but there is no mention of selecting sides of symbols, much less according to a connection between the symbols.

Therefore, Ishikawa fails to teach or suggest "sequencing symbol placement in a wiring harness layout for at least one bundle comprising signal-carriers, at least in part according to the connectivity strength of at least one pair of symbols, the at least one pair of symbols having at least one connection in-between, the connectivity strength being determined by the at least one connection in-between the at least one pair of symbols" and "selecting a side of a first symbol on which to place a pin to increase the directness of connectivity between the first symbol and a second symbol," as recited in claims 9, 22, and 35. Accordingly, the 35 U.S.C. § 102(e) rejections of independent claims 9, 22, and 35 should be withdrawn.

Dependent claims 10-11, 23-24, and 36-37 depend from independent claims 9, 22, and 35, respectively, and are allowable for at least the reasons recited above in support of their parent claims 9, 22, and 35. They are also independently patentable. Accordingly, Applicants respectfully request that the 35 U.S.C. § 102(e) rejections of claims 10-11, 23-24, and 36-37 be withdrawn.



**e. Claims 12-13, 25-26, and 38-39**

Independent claims 12, 25, and 38 require: "when there is at least one predefined symbol in the netlist, selecting as the next pair of symbols a pair of symbols having the highest connection strength and comprising a predefined symbol."

Ishikawa fails to teach or suggest anything related to connection strength, much less selecting as the next pair of symbols a pair of symbols having the highest connection strength and comprising a predefined symbol, as recited in independent claims 12, 25, and 38. Ishikawa teaches against considering connection strength between symbols because Ishikawa is understood to concern itself only with wiring information that concerns what a wiring harness itself will be connected to and specific attributes of wires of the wiring harness. For example, FIG. 4 (as noted in the Action) includes the inputting of wiring information, which "includes, for example, auxiliary unit information on a plurality of **auxiliary units** (such as an ABS, a lamp, an electronic control unit (ECU), etc.) **to be connected to a wiring harness, terminal information** on a plurality of terminals of the plurality of auxiliary units, **wire information attributes (a kind of wire, a wire diameter, color, etc.)** of a plurality of wires to be connected between the plurality of auxiliary units, etc." (see col. 6, lines 42-49, emphasis added). Thus, Ishikawa is understood to not take into account anything relating to connection strength in any selecting of symbol pairs.

Furthermore, FIG. 10 (as noted in the Action), shows an example of a route drawing prepared on a screen. The discussion of the preparation of the route drawing includes the connection of passing points (see col. 8, lines 51-67). Ishikawa continues by discussing the use of route information, which includes the route and length of harness for each passing point (see FIG. 6). Ishikawa also wire-connection between auxiliary units, which includes minimizing the

length of wires between certain auxiliary units (see col. 9, lines 34-56). Again, Ishikawa is understood to not take into account anything relating to connection strength in any selecting of symbol pairs.

Therefore, Ishikawa fails to teach or suggest "selecting as the next pair of symbols a pair of symbols having the highest connection strength and comprising a predefined symbol," as recited in independent claims 12, 25, and 38. Accordingly, Applicants respectfully request that the 35 U.S.C. § 102(e) rejections be withdrawn from independent claims 12, 25, and 38.

Dependent claims 13, 26, and 39 depend from independent claims 12, 25, and 38, respectively, and are allowable for at least the reasons recited above in support of their parent claims 12, 25, and 38. They are also independently patentable. Accordingly, Applicants respectfully request that the 35 U.S.C. § 102(e) rejections of claim 13, 26, and 39 be withdrawn.

#### **f. Claims 40 and 41**

Independent claims 40 and 41 disclose carrier waves. Ishikawa is understood to not teach or suggest anything having to do with carrier waves, much less carrier waves comprising signals defining component symbols. Therefore, Ishikawa fails to teach or suggest carrier waves such as those recited in independent claims 40 and 41. Accordingly, Applicants respectfully request that the 35 U.S.C. § 102(e) rejection be withdrawn from independent claims 40 and 41.

#### **V. Request for Examiner Interview**

If any issues remain, the Examiner is formally requested to contact the undersigned attorney prior to issuance of the next Office Action in order to arrange a telephonic interview. It is believed that a brief discussion of the merits of the present application may expedite

prosecution. Applicants submit the foregoing formal Amendment so that the Examiner may fully evaluate Applicants' position, thereby enabling the interview to be more focused.

This request is being submitted under MPEP § 713.01, which indicates that an interview may be arranged in advance by a written request.

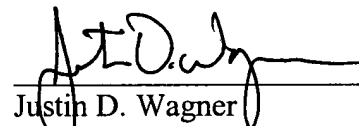
## **VI. Conclusion**

The present application is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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